UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

MEMORANDUM

DATE: 08 Sept 1998

SUBJECT: Request for a Removal Action at Grey Eagle Mine site, Happy Camp, CA
ACTION MEMORANDUM

FROM: Robert M. Mandel, OSC, Emergency Response Office

TO: Keith Takata, Director, Superfund Division

THRU: Terry Brubaker, Chief, Emergency Response Office

I. PURPOSE

The purpose of this Action Memo is to request and document approval of the proposed removal action described herein for the Grey Eagle Mine site, Happy Camp, CA.

II. SITE CONDITIONS AND BACKGROUND

Site Status:	Non-NPL
State Notification:	08/31/98
Trustee Notification:	08/31/98
Category of Removal:	Time-Critical
CERCLIS ID:	CAD000629923
Site ID:	CP

A. Site Description

1. Removal site evaluation

The removal site evaluation consisted of assessments at the subject facility conducted on April 17, 1996 and on August 19, 1998. The following conditions were documented during the assessments:

a. Acid rock drainage (ARD) was documented by visual observation and sampling to be migrating from the mill tailings offsite directly to Indian Creek. This drainage contained the following hazardous substances: arsenic, chromium, copper, nickel, and zinc. A fish bioassay using water from this drainage was fatal to 100% of the test fish;

b. No response actions deemed effective at removing the threat of continuing or future releases were taking place;

c. The pile of abandoned mill tailings contained approximately 475,000 cubic yards of material arrayed over a 14 acre portion of the site. Tailings had been graded into a flat-bottomed pond consistent with its use as a lumber mill log pond, and tailings were used as berms for the log pond. Backhoe excavation in several areas of the tailings demonstrated that the pile was still relatively un-oxidized. This finding indicated that the tailings, if left in their current state, would continue to oxidize for many years. This gradual oxidation over a long time period means that sulfuric acid and heavy metals will continue to be released from the site to Indian Creek for an indefinite period; and

d. During peak flows, Indian Creek inundates a portion of the site posing the threat of tailings collapse directly into the Creek. This collapse will result in an immediate release of hazardous substances to Indian Creek.

2. Physical location

The site occupies portions of a 20 acre site on Indian Creek Road., 5.5 miles north of Happy Camp, Siskiyou County, CA. The site was previously used as a copper mine mill tailings dump, and a subsequently as a lumber mill The mill tailings onsite result from copper mine operations at the Grey Eagle Mine, approximately 2 miles from the tailings location. The tailings were slurried downhill from the ore processing facilities to the edge of Indian Creek where they remain. The copper mine last operated during World War II. The lumber mill operated into the 1980s, and its operator was responsible for re-grading the mill tailings into a log pond.

3. Site characteristics

The site is located on the banks of Indian Creek, a tributary of the Klamath River. Indian Creek is habitat for numerous wildlife species, in particular the coho salmon, chinook salmon, and steelhead trout. The steelhead and coho salmon are endangered species.

4. Release or threatened release into the environment of a hazardous substance, or pollutant or contaminant

Current conditions at the site are causing a release of acid and heavy metals to Indian Creek as a result of the continued oxidation of sulfide mill tailings disposed onsite. Acid rock drainage (ARD), also referred to as acid mine drainage (AMD), is the process in which

sulfide minerals oxidize in a weathering environment forming sulfuric acid. The sulfuric acid increases the mobility of many heavy metals by making them more soluble.

Tailings can be directly released due to the undermining of the tailings pile during high flow periods on Indian Creek.

5. NPL status

The site is not on the NPL.

B. Other Actions to Date

1. Previous actions

Releases from the site adversely affecting Indian Creek and its fish have been documented by State agencies since the 1950s. Most recently, the North Coast Regional Water Quality Control Board has been unsuccessful in getting potentially responsible parties (PRPs) to conduct response actions.

2. Current actions

Currently, there are no response actions underway at the site.

C. State and Local Authorities's Roles

1. State and local actions to date

As previously discussed, the State has been unable to get PRPs to conduct a response action. No effective response actions have been taken by private parties or public agencies at the site.

2. Potential for continued State/local response

Neither the State or local authorities have the resources to conduct response actions at the site.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

A. Threats to Public Health or Welfare

1. Actual or potential exposure to hazardous substances or pollutants or

contaminants by nearby populations or the food chain

As the sulfide mill tailings continue to oxidize, sulfuric acid will be produced and will mobilize heavy metals from the site. Wildlife will continue to be exposed either in Indian Creek or by ingesting heavy metals exposed at the ground surface. These heavy metals can bioaccumulate posing an increased health risk in people ingesting contaminated wildlife. Hunting and fishing are major recreational activities in the area. Areas immediately downstream are used by local residents for swimming.

2. Actual or potential contamination of drinking water supplies

Increased heavy metals runoff to Indian Creek could contaminate drinking water at higher levels than at present.

3. Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release

N/A.

4. High levels of hazardous substances or pollutants or contaminants in soils at or near the surface, that may migrate

As the mill tailings continue to oxidize, acid will be produced and will mobilize heavy metals from the site to Indian Creek..

5. Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released

During high flows, Indian Creek flows adjacent to the tailings and has been eroding portions of the pile for some time. In some places it has undercut the tailings pile, posing the threat of a large-scale collapse of tailings directly to Indian Creek.

6. Threat of fire or explosion

None.

B. <u>Threats to the Environment</u>

1. Actual or potential exposure to hazardous substances or pollutants or contaminants by nearby animals or the food chain

Same as previously stated.

2. Actual or potential contamination of sensitive ecosystems

The portion of Indian Creek adjacent to the site is habitat for the coho salmon (endangered species), the steelhead trout (endangered species), and chinook salmon. Currently, the California Dept. of Fish & Game classifies this segment of Indian Creek as a fish- avoidance area@, meaning fish can survive by avoiding the contaminated areas. At this time, it has not been determined to what extent continued discharge will further adversely affect the aquatic habitat in Indian Creek or the Klamath River.

3. Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release.

N/A

4. High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate

As previously discussed.

5. Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released

As previously discussed.

6. Threat of fire or explosion

None.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. <u>Proposed Actions</u>

1. Proposed action description

The site is approximately 20 acres in size contains approximately 475, 000 cubic yards of mill tailings. The site borders Indian Creek. The immediate threats to human health and the environment are:

a. The continuing release of acid rock drainage (ARD) contaminated with hazardous substances (heavy metals) to Indian Creek; and

b. The potential collapse of heavy metals-contaminated mill tailings directly into Indian Creek due to the instability of the tailings on portions of the site.

Indian Creek is a critical habitat for many species of wildlife, especially the coho salmon, chinook salmon, and steelhead.. Additionally, Indian Creek is used by residents for drinking, irrigation, and recreation.

In order to adequately respond to the immediate threats, the following actions are proposed:

1. Consolidate all mill tailings on the site and stockpile them on the former log pond prior to grading and capping.

2. Reduce the slope between the log pond and Indian Creek from its present 1:1 grade to a gentler 2.5:1 slope to reduce the threat further erosion and of collapse to Indian Creek..

3. Grade the tailings in the log pond to a 50:1 slope connecting to the 2.5:1 portion.

4. Cover the entire tailings area in the log pond (approx. 14 acres) with a 60 mil (0.060 inches) High Density Polyethylene (HDPE) liner to prevent the further oxidation of the mill tailings and to prevent water from infiltrating the tailings pile.

5. Cover the liner with 12 inches of clean soil and seed with native grasses.

2. Contribution to remedial performance

<u>The long-term cleanup plan for the site:</u>
There is presently no long-term plan for this site.

<u>Threats that will require attention prior to the start of a long-term cleanup:</u>
These will be addressed by this proposed removal action.

<u>The extent to which the removal will go to ensure that threats are adequately</u>

abated:

The proposed removal action should substantially reduce the threats discussed above for a period of 5-10 years.

3. Description of alternative technologies

No alternative technologies are proposed at this time.

4. EE/CA

N/A

5. Applicable or relevant and appropriate requirements (ARARs)

Federal: The Trustee has been notified and EPA will consult with the US Dept. of Interior Fish and Wildlife Service (the Trustee) about requirements they believe are applicable to our response action.

State: No State ARARs are known at this time.

6. Project schedule

The proposed removal action is planned to commence in September 1998, and should last approximately eight weeks.

B. Estimated Costs

See Appendix B attached.

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

If the removal action should be delayed or not taken, hazardous substances will continue to be released at this site and will continue to pose an immediate threat of exposure to people and the environment in the vicinity of the site.

VII. OUTSTANDING POLICY ISSUES

Tailings have been dumped on approximately 0.3 acres of USFS property (Klamath National Forest) adjacent to the privately owned portion of the site. This fact was discovered subsequent to the 1996 assessment by Klamath National Forest officials. The property lines are

not well-defined at the site, nor was the disposal known by or approved by the USFS. The proposed removal action will remove the tailings on USFS property and consolidate them with the rest of those onsite in the old log pond. This action will require minimal additional expense by EPA and can be efficiently accomplished as part of the overall response. EPA's actions on USFS property will be coordinated with Klamath National Forest officials. Klamath National Forest will provide technical services to assist in the removal action in the areas of stream-side erosion protection, fisheries expertise, and geological consulting.

VIII. ENFORCEMENT

See Appendix A attached.

IX. RECOMMENDATION

This decision document represents the selected removal action for the Grey Eagle Mine site, Happy Camp, CA, developed in accordance with Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA") as amended, 42 U.S.C. '9601 et seq., and the National Contingency Plan ("NCP"), 40 C.F.R. Part 300. This decision is based on the administrative record for the site.

Conditions at the site meet the NCP section 300.415(b)(2) criteria for a removal. It is recommended that you approve the proposed removal action. The total project ceiling if approved will be $1,726,291. Of this, an estimated $1,456,655 comes from the Regional removal allowance.

Approval Signature — Date 9/9/98

Disapproval Signature — Date